tuberculosis is an infective disease of the lymphatic system; and that while, on the one hand, the serous membranes play the most important part in the generalization of the tuberculous infection, *i. e.*, in conveying it to the organs contained in the great serous cavities, its distribution inside of those organs is governed by that of the lymphatic vessels.—*Bienn. Retrospect Syd. Soc.* 1869.

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17. *Pathology of Phthisis.*—The pathology, and in consequence the prognosis of this disease, have received important additions and modifications during the past two years. The results of the various researches which have been recorded above, on the subject of tubercular inoculation, have added the last links which were necessary to the proof that under the word phthisis—used roughly for destructive pulmonary disease attended with wasting—there are really included a variety of disorders with most important differences in their essential nature. Several things have become abundantly clear. The most practically important of these is the fact that wasting disease, attended with *cheesy* deposit in the lungs, may certainly, and in truth very often does, result from a mere neglected catarrhal pneumonia or other inflammatory affection, in which there is increased cell-formation within the finer bronchial tubes, which extends itself to the alveoli, and that a considerable proportion of such cases is curable. Secondly, that miliary or gray tubercle (to which the term "tubercle" increasingly tends to be limited) is, in the majority of instances at least, altogether a secondary production, the result of absorption of infective matters of various kinds, of which cheesy matter from lung deposits is, perhaps, the most common. It is apparent that the advent of true tuberculosis, in a case previously distinguished only by cheesy deposits and by more or less constitutional hectic, is the commencement of a new and much more dangerous state of things, from which recovery rarely, we may practically say almost never, occurs. A third series of facts which have been brought into great and possibly exaggerated prominence, are those which are observed in a class of cases distinguished by a special tendency to fibroid changes within the lung. Only a few observers maintain that these cases form an entirely separate group; yet in a prognostic point of view it will certainly henceforth be of the highest consequence to note the following group of phenomena: Limitation of deposits to one lung; slow progress of the disease; absence of fever and sweating; tendency to retraction of the chest wall.

Finally, it may be noted that there is a greatly increasing tendency to consider *hemorrhage* as a comparatively unimportant occurrence in pulmonary disease. So far from its having that serious or even almost necessarily fatal augury which was ascribed to it by some of the most distinguished classical authorities not many years since, it is the tendency of recent observation to associate hemorrhage rather with a curable class of cases, and to regard it as frequently affording a harmless and even beneficial relief to mechanical congestion.—*Syd. Soc. Bienn. Retrosp.* 1869.

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18. *Pulmonary Hemorrhage.*—The following are NIEMEYER's conclusions on this subject:—

1. Abundant bronchial hemorrhages occur more frequently than is supposed in people who neither then nor ever afterwards are consumptive.

2. In many cases the commencement of consumption is preceded by abundant hemorrhage, but there is no genetic connection between the two, which really arise both from a common source. The patient has, in fact, a predisposition to them both.

3. Hemorrhages from the bronchial mucous membrane proceeding from consumption are sometimes in true genetic connection with it, inasmuch as the hemorrhage may lead to inflammatory processes in the lungs, terminating finally in their breaking down.

4. Bronchial hemorrhages occur much more frequently in the course of a consumption than before the disease. They really refer to the time in which the lung disease was as yet latent.

5. Bronchial hemorrhages occurring in the course of consumption may make

that disease fatal by means of their tendency to hasten the destructive inflammatory processes.—*Syd. Soc. Bienn. Retrosp.* 1869, from *Klin. Vorträge über d. Lungenschwindsucht*, Berlin, 1867.

19. *The Causes of Cough.*—Dr. NOTHNAGEL has made a series of experiments in order to determine the question what parts of the respiratory apparatus are sensitive in such a manner that their irritation causes a cough. His experiments were made upon cats and dogs. 1. A young strong cat had the hyothyroid membrane opened, and a piece of the thyroid cartilage cut out above the vocal cords, so that one could look down clearly upon the cords. When the mucous membrane was gently irritated, or even pretty strongly excited with a sound, no trace of cough was produced; nor when the irritation was extended to the posterior part of the epiglottis, and the whole extent of the vocal cords. But when once the posterior wall of the larynx was irritated through the glottis there was violent coughing. From this we learn that irritation of the healthy mucous membrane of the windpipe above the two cords, and of the upper surface of the latter, does not produce cough. A further series of experiments were made to determine whether cough could be produced by irritating the mucous membrane of the trachea. It was discovered that this irritation did produce cough, but the cough was not so immediately and easily produced by irritation of the windpipe as of the higher parts. While the slightest irritation of the larynx produced energetic cough, it was necessary to be very much more rough in exciting the trachea in order to produce the same effect. It is also striking to see how quickly the trachea, when opened, loses its sensibility, so that after a time it is impossible to produce a cough. In this way it is easy to see how some experimenters have discovered different results from Nothnagel's.

These results obviously bear upon clinical experience. We know, for instance, that in a tolerably severe and recent catarrh of the throat pressure on the sides of the neck, and upon the manubrium, immediately produces cough. Irritation of the bifurcation of the windpipe produces much more energetic coughing than that of the trachea; in fact, this part is as irritable as the larynx. This fact also corresponds with the well-known clinical experience, that in the deep-seated catarrh pressure on the manubrium will often cause cough.

In order to test these results, further experiments were now made on section of the superior laryngeal nerves, and the trunks of the vagi above the point of their origin. When both vagi were divided irritation of the larynx produced cough, but irritation of the trachea and its bifurcation had no effect. When the superior laryngeal nerves were divided the larynx might be irritated to any extent without the least cough; but irritation of the trachea and its bifurcation produced coughing. These experiments show undoubtedly that it is not only the superior laryngeal nerve whose irritation causes cough, but that yet deeper branches of the vagus, whose terminations supply the mucous membrane of the windpipe, are also capable of causing cough in a reflex manner.

We now come to the question whether irritation of the bronchial mucous membrane causes cough. It is no use to test this question by irritation from above, as by a tracheal fistula. The experiment which Nothnagel devised was as follows: He wounded the lung substance through an opening in an intercostal space. The animal did not cough, but on his making a second puncture it coughed suddenly and violently. Dissection proved that the needle on the last occasion had penetrated a bronchus of medium size. In the next experiment, on a cat, portions of two ribs were cut away, and the collapsed lung was drawn out through the opening and fastened with a thread. A bit of the lung was now cut off with sharp scissors. The surface showed one or more bronchial tubes. These were irritated. When the experiment is lucky one may chance to cut a bronchus partly lengthways, and irritation can then be well applied. The result leaves no doubt that irritation of the bronchi will cause cough directly; nevertheless, it must be confessed these experiments are not so exact as those on the trachea and larynx. It is, of course, impossible to experiment upon the smallest bronchial tubes, but it may be assumed that irrita-